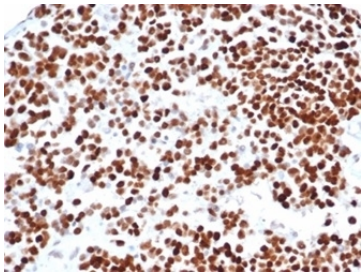
TP53 Antibody / Tumor Suppressor Protein Antibody [clone rTP53/6927] (V9400)

Catalog No.	Formulation	Size
V9400-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	100 ug
V9400-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	20 ug
V9400SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Recombinant | MOUSE MONOCLONAL

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Recombinant Mouse Monoclonal
Isotype	Mouse IgG2a, kappa
Clone Name	rTP53/6927
Purity	Protein A/G affinity
UniProt	P04637
Localization	Nucleus
Applications	Immunohistochemistry (FFPE) : 1-2ug/ml
Limitations	This TP53 antibody is available for research use only.



TP53 Antibody / Tumor Suppressor Protein Antibody immunohistochemistry of human serous ovarian carcinoma. Formalin-fixed, paraffin-embedded human serous ovarian carcinoma tissue was stained using recombinant mouse monoclonal antibody clone rTP53/6927. Strong HRP-DAB brown nuclear staining is observed in tumor epithelial cells, consistent with nuclear localization of the TP53 tumor suppressor protein p53. Hematoxylin counterstain provides nuclear contrast. Antigen retrieval was performed by boiling tissue sections in pH 9 10mM Tris with 1mM EDTA for 20 min followed by cooling prior to staining.

Description

Tumor protein p53 (TP53) is a nuclear transcription factor widely recognized as one of the most important tumor

suppressor proteins in human biology. Acting as a central regulator of genomic stability, p53 monitors cellular stress and prevents the proliferation of cells carrying damaged DNA. The TP53 Antibody / Tumor Suppressor Protein Antibody detects this critical tumor suppressor protein, commonly referred to as p53, which coordinates transcriptional programs that control cell cycle arrest, apoptosis, senescence, and DNA repair. Because of these protective functions, p53 is frequently described as the 'guardian of the genome'.

TP53 antibody, also referred to as p53 antibody or Tumor protein p53 antibody in the literature, targets a tumor suppressor protein that is activated in response to a wide range of cellular stresses including DNA damage, oncogene activation, oxidative stress, and hypoxia. Under normal physiological conditions p53 protein levels remain low due to continuous ubiquitin-mediated degradation driven primarily by the E3 ligase MDM2. Cellular stress signals disrupt this regulatory interaction, allowing stabilization and nuclear accumulation of the tumor suppressor protein where it activates transcription of genes that halt cell proliferation or initiate programmed cell death.

Structurally, p53 contains several functional regions that support its activity as a tumor suppressor protein. These include an N-terminal transactivation domain responsible for recruitment of transcriptional machinery, a highly conserved DNA-binding domain that recognizes p53 response elements within target genes, and a C-terminal oligomerization domain that allows formation of transcriptionally active tetramers. The DNA-binding domain is the most frequently mutated region of the TP53 gene in cancer, and disruption of this region impairs the tumor suppressor function of the protein by preventing proper transcriptional activation of downstream regulatory genes.

Activation of the p53 tumor suppressor protein leads to transcriptional induction of genes such as CDKN1A (p21), which halts cell cycle progression and allows time for DNA repair mechanisms to restore genomic integrity. When cellular damage is severe or irreparable, the tumor suppressor protein shifts cellular signaling toward apoptosis through activation of pro-apoptotic genes including BAX, PUMA, and NOXA. Through these mechanisms p53 functions as a critical safeguard against oncogenic transformation by eliminating cells with potentially harmful genetic alterations.

Loss of TP53 tumor suppressor protein activity is one of the most common molecular events in human cancer. Mutations in the TP53 gene occur in a large proportion of tumors including breast carcinoma, lung cancer, colorectal carcinoma, and ovarian cancer. In many tumor cells mutant forms of the tumor suppressor protein become stabilized and accumulate within the nucleus, leading to elevated p53 protein levels that are frequently detected in cancer tissues.

A recombinant mouse monoclonal TP53 antibody such as clone rTP53/6927 is suitable for detecting the p53 tumor suppressor protein in studies examining tumor suppressor signaling pathways, cellular stress responses, and mechanisms underlying oncogenesis.

Application Notes

Optimal dilution of the TP53 Antibody / Tumor Suppressor Protein Antibody should be determined by the researcher.

Immunogen

Recombinant full-length human TP53 protein was used as the immunogen for the TP53 Antibody / Tumor Suppressor Protein Antibody.

Storage

Aliquot the recombinant TP53 antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

Alternate Names

p53 antibody, Tumor protein p53 antibody, Cellular tumor antigen p53 antibody, Phosphoprotein p53 antibody, Transformation related protein 53 antibody